

DISCUSSION OF THE AMENDMENT

Due to the length of the specification herein, Applicants will cite to the paragraph number of the published patent application (PG Pub) of the present application, i.e., US 2007/0066704, when discussing the application description, both in this section and in the Remarks section, *infra*, rather than to page and line of the specification as filed.

Claim 1 has been amended by further defining component a), as supported in the specification at paragraphs [0023]-[0028].

Claim 9 has been amended to correct a typographical error. Claims 11 and 12 have been amended to depend on Claim 9. Claim 22 has been amended by inserting the missing --substrate--.

New Claim 23 and 24 have been added. Claim 23 is supported by Claim 5. Claim 24 is supported in the specification at paragraph [0029].

No new matter is believed to have been added by the above amendment. Claims 1-6 and 9-24 are now pending in the application.

REMARKS

The rejection of Claims 1-6 and 9-22 under 35 U.S.C. § 103(a) as unpatentable over US 4,309,526 (Baccei) in view of US 6,458,459 (Schwalm et al), is respectfully traversed.

Baccei discloses a polymerizable composition based on prepolymers which are derived from the reaction between poly(alkylene)ether polyols and organic polyisocyanates (column 1, lines 53-56). Specifically, Baccei discloses a curable composition comprising

- I. a polymerizable product corresponding in structure to a reaction product of (a) a poly(alkylene)ether polyol (preferably glycol) with either of: (b) (i) at least a molar equivalent of a reaction product of: at least a molar equivalent of an aromatic or cycloaliphatic polyisocyanate with a compound selected from the group consisting of an aromatic or cycloaliphatic polyol or polyamine, or (ii) at least a molar equivalent of an aromatic or cycloaliphatic polyisocyanate, the product of (a) and (b) (i) or (a) and (b) (ii) subsequently being reacted with at least a molar equivalent of a hydroxyalkyl acrylate, a hydroxyalkyl methacrylate, an aminoalkyl acrylate, or an aminoalkyl methacrylate; and
- II. a free radical initiator (column 2, lines 4-21).

The poly(alkylene)ether polyol may be, for example, poly(tetramethylene)ether glycol (column 4, lines 34-35). Baccei discloses further that his composition may be prepared with reactive diluents (column 6, line 62ff). The reactive diluent overlaps with the above-discussed hydroxyalkyl acrylate and hydroxyalkyl methacrylate of step (ii) used to form the polymerizable product. The only such reactive diluent listed and containing a heterocycle is tetrahydrofurfuryl methacrylate (column 7, line 4).

Schwalm et al discloses radiation-curable formulations comprising i) at least one aliphatic, urethane-functional prepolymer which on average has at least two ethylenically unsaturated double bonds per molecule (component A), ii) at least one monofunctional ester of an α,β -ethylenically unsaturated carboxylic acid with a monofunctional alcohol which has as a structural element at least one saturated 5- or 6-membered carbocycle or one saturated 5- or 6-membered heterocycle with one or two oxygens in the ring (component B), and iii) if desired, di- or polyfunctional esters of an α,β -ethylenically unsaturated carboxylic acid with an aliphatic di- or polyol (component C) (column 2, lines 23-36).

The Examiner holds that it would have been obvious to use above-referenced component B of Schwalm et al as the reactive diluent in Baccej.

In reply, while Baccej discloses that his organic polyisocyanate is aromatic or cycloaliphatic, all but one of Baccej's examples employ an aromatic polyisocyanate, thus strongly suggesting that aromatic polyisocyanates are most preferable. The present invention, on the other hand, limits the urethane (meth)acrylate to aliphatic compounds. Nor does Baccej disclose a ratio of OH groups to NCO groups of his reactants such that his urethane (meth)acrylate generally contains no NCO groups. While Schwalm et al's component B may contain at least one saturated 5- or 6-membered heterocycle with one or two oxygens in the ring, their component B may also be at least one saturated 5- or 6-membered carbocycle.

Thus, it is only with the present disclosure as a guide that one skilled in the art would choose a cycloaliphatic polyisocyanate as the polyisocyanate in Baccej and use a heterocycle-containing reactive diluent, as opposed to a carbocyclic-containing reactive diluent, even though Schwalm et al treats them as interchangeable. Note the comparative data in the specification, particularly Examples 1 and Comparative Example 2, wherein Comparative Example 2 employs cyclohexyl methacrylate, which is a species of carbocyclic-containing

reactive diluent disclosed by Schwalm et al. The difference in scratch resistance, as measured by decrease in gloss, is manifest, i.e., 15% vs. 62%, as described in the specification at paragraph [0067], and could not have been predicted by the applied prior art.

New Claims 23 and 24 are separately patentable, since Baccei does not disclose trimethylolpropane monoformal acrylate or isophorone diisocyanate.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

The rejection of Claim 22 under 35 U.S.C. § 112, second paragraph, as indefinite, is respectfully traversed. Indeed, the rejection is now moot in view of the above-discussed amendment. Accordingly, it is respectfully requested that the rejection be withdrawn.

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

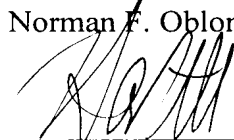
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